

REMARKS

Claims 1-10 are pending. Claims 1-10 are rejected.

CLAIM AMENDMENTS

Claims 1, 9, and 10 have been amended. Specifically, claim 1 is amended to further clarify that the rectangular support flame portion surrounding the mass member is closed in the circumferential direction thereof. Claim 1 is also amended to further clarify that each of the plurality of elastic connecting members is bonded by vulcanization at both ends thereof to both of the corresponding one of the pair of support sides and the corresponding one of the opposing end faces of the mass member, and that the support frame portion is deformed after the elastic connecting members being bonded by vulcanization to the support frame portion. Claim 9 is similarly amended. Claim 10 is amended to correct a typographical error.

No new subject matter is added by way of these amendments, as support for the amendments may be found, for example, in paragraphs [0008] and [0016] and Fig. 1 of the instant application.

REJECTION UNDER 35 U.S.C. 102

Claims 1, 2, 4-6, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by JP-4-46246 (hereinafter JP246). The Applicant respectfully argues that JP246 does not disclose every limitation included in the amended independent claims 1 and 9, and in turn dependent claims 2 and 4-6, which depend on claim 1.

The newly incorporated features to claims 1 and 9 ensure high dimensional accuracy and high precision tuning of the damper while ensuring pre-compression of the elastic connecting member for the durability, and are not anticipated by JP246. Specifically, amended claim 1 comprises of the following features:

- (1) a mass member;
- (2) a support frame member including a substantially rectangular support frame portion surrounding the mass member with a given gap distance therebetween, and being closed in its circumferential direction;
- (3) a plurality of elastic connecting member disposed in spaced defined between the pair of support sides of the support frame portion and opposing

end faces of the mass member, respectively, and each being bonded by vulcanization both of the corresponding one of the pair of support sides and the corresponding one of the opposing end faces of the mass member; and

(4) the support frame portion is deformed after the elastic connecting members being bonded by vulcanization to the support frame portion to pre-compress the plurality of elastic connecting members.

The present invention relates to a specific dynamic damper wherein by means of the plurality of elastic connecting members, the mass member is elastically connected to and supported by the pair of support sides of the support frame portion. The plurality of elastic connecting members are bonded by vulcanization at the both ends to both of the mass member and the support frame portion.

In order to minimize a tensile stress in the rubber elastic body due to its contraction during the vulcanization, the support frame is deformed after the vulcanization so that the elastic connecting members are pre-compressed, resulting in a further improved durability of the elastic connecting members.

The dynamic damper constructed according to the present invention employs the support frame portion in the form of a substantially rectangular frame, which is closed in its circumferential direction, so that after being subjected to the deformation process performed on the support frame portion, the dynamic damper of the present invention can minimize and control an amount of spring back in the support frame portion, with high accuracy.

Therefore, the present dynamic damper can improve its durability by pre-compressing the elastic connecting members, can ensure its high dimensional accuracy, and thus can be tuned to a desired frequency band with high stability. Thus, the present aspect of the present invention can provide a dynamic damper of novel structure, which is capable of exhibiting desired damping effect with high stability, while ensuring its excellent durability (see paragraph [0016] of the specification).

With respect to amended independent claim 1 specifically, JP246 fails to teach at least the aforementioned feature (3). Namely, the plurality of elastic connecting members 5 are only bonded by vulcanization on the mass member 3, but not be bonded by vulcanization to the frame member 6. They are just held in contact with the inner surface of the metallic case 6.

JP246 also fails to teach at least the aforementioned feature (4). Namely the rigid metallic case 6 is never deformed after the vulcanization of the elastic connecting members 5.

Therefore, JP246 does not disclose every limitation included in amended claim 1. Thus, JP246 does not anticipate claim 1, and claim 1 is believed- to be patentable over JP246. Claims 2 and 4-6 are believed to be patentable over JP246 for at least the same reasons, as they depend on claim 1.

With respect to amended independent claim 9, the same argument for claim 1 applies. Therefore, JP246 does not disclose every limitation included in claim 9. Thus, JP246 does not anticipate claim 9, and claim 9 is believed to be patentable over JP246.

REJECTION UNDER 35 U.S.C. 103

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP2824382 (hereinafter JP382) in view of Suzuki (JP02057475A). The Applicant respectfully argues that the amended independent claims 1 and 9 incorporated features that would not have been obvious over JP382 in view of Suzuki.

With respect to claim 1, amended claim 1 comprises of the following features:

- (1) a mass member;
- (2) a support frame member including a substantially rectangular support frame portion surrounding the mass member with a given gap distance therebetween, and being closed in its circumferential direction;
- (3) a plurality of elastic connecting member disposed in spaced defined between the pair of support sides of the support frame portion and opposing end faces of the mass member, respectively, and each being bonded by vulcanization both of the corresponding one of the pair of support sides and the corresponding one of the opposing end faces of the mass member; and
- (4) the support frame portion is deformed after the elastic connecting members being bonded by vulcanization to the support frame portion to pre-compress the plurality of elastic connecting members.

First, the primary reference, JP382, fail to teach at least the aforementioned feature (2). The Examiner admits that “JP382 lacks the support frame portion surrounding the mass member and the support frame portion is deformed so that said pair of support sides are relatively displaced toward each other to pre-compress said

plurality of elastic connecting members.” More importantly, in the present application, the support frame member is closed in its circumferential direction. As shown in FIG. 1, the elastic connecting members 42 are bonded at one end to the circumferentially opposite free ends 46, 46 of the frame 45. This is the conventional structure discussed in paragraph [0007] of the specification, so that it suffers from the conventional problem to be solved by the present invention

In addition, as admitted by the Examiner, JP382 fails to teach the aforementioned feature (4) of the present invention. Namely, the support frame portion is deformed after the elastic connecting members being bonded by vulcanization to the support frame portion to pre-compress the plurality of elastic connecting members.

Moreover, the secondary reference, Suzuki, fails to teach at least the aforementioned feature (2) of the present invention. Although “Suzuki teaches the concept of having support frame portion 32 surrounding the mass member 41 and the support frame,” Suzuki does not teach the limitation that the support frame portion is being closed in its circumferential direction as amended in aforementioned feature (2).

In addition, Suzuki fails to teach at least the aforementioned feature (3) of the present invention. Specifically, each elastic connecting member is required to be disposed between and bonded by vulcanization both of the corresponding one of the pair of support sides of the frame and the corresponding one of the opposing end faces of the mass member.

In contrast, Suzuki teaches the dynamic damper wherein the mass member 41 is supported by the rubber support 43 disposed on one side of the mass member 41 (see FIG. 6 of Suzuki), and the opposite side of the mass member 41 is freely displaceable. With this structure, even if the frame is deformed as shown in FIG. 7 as suggested by the examiner, it is structurally impossible to apply pre-compression against the rubber support 43. Indeed, Suzuki explains in page 654 that the plate 38 is deformed as shown in FIG. 7 so as to absorb shock due to its plastic deformation upon collision of the automobile. Thus, Suzuki never teaches or anticipates the aforementioned feature (4) of the present invention, i.e., the support frame portion is deformed after the elastic connecting members being bonded by vulcanization to the support frame portion to pre-compress the plurality of elastic connecting members.

Therefore, JP382 in combination of Suzuki does not disclose every element included in amended claim 1. Namely, JP382 and Suzuki in combination at least do not disclose every part of the aforementioned feature (2), as amended, of the present invention. For the above reasons, amended claim 1 is believed to be patentable over JP382 in view of Suzuki.

With respect to amended independent claim 9, the same argument for claim 1 applies. Therefore, JP382 and Suzuki do not disclose every limitation included in claim 9. Thus, JP382 and Suzuki do not make obvious claim 9, and claim 9 is believed to be patentable over JP382 and Suzuki.

Dependent claims 2-8 and 10 are also patentably distinct from the cited references for at least the same reasons as those recited above for the independent claims 1 and 9, upon which they ultimately depend. These dependent claims recite additional limitations that further distinguish these dependent claims from the cited references.

CONCLUSION

In view of the foregoing, it is respectfully submitted that all pending claims are allowable over the prior art. The Applicant respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a further telephone conference would expedite the prosecution of this application, the undersigned can be reached at telephone number (650) 961-8300.

Respectfully submitted,
BEYER, WEAVER & THOMAS, LLP



Michael Lee
Registration No. 31,846

P.O. Box 70250
Oakland, CA 94612-0250
Telephone: (650) 961-8300